

25. (Newly Added) The signal detector of claim 24, wherein the at least one reference signal determines the location of the frame boundary.

26. (Newly Added) The signal detector of claim 24, wherein the at least one reference signal provides bit synchronization information associated with the signal of interest.

27. (Newly Added) The signal detector of claim 24, wherein the at least one reference signal provides information specifying the location of data epochs associated with the signal of interest.

28. (Newly Added) The signal detector of claim 27, wherein the at least one reference signal provides information determining phase reversals of the data epochs.

29. (Newly Added) The signal detector of claim 24, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame.

30. (Newly Added) The signal detector of claim 29, further comprising a phase detector configured to detect the phase reversal, and wherein the coherent integrator is responsive to the detection of the phase reversal and is configured to adjust the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

31. (Newly Added) The signal detector of claim 29, further comprising a phase detector configured to detect the phase reversal, and wherein the coherent integrator is responsive to the detection of the phase reversal and is configured to flip the sign of the data residing in the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

32. (Newly Added) The signal detector of claim 29, further comprising a frame boundary detector configured to detect the frame boundary, wherein the coherent integrator, responsive to the detection of the frame boundary, is configured to noncoherently integrate the ending portion of the first frame and the beginning portion of the second frame.

33. (Newly Added) The signal detector of claim 29, further comprising a frame boundary detector configured to detect the frame boundary, wherein the coherent integrator, responsive to the detection of a frame boundary, is configured to derive first correlation data by coherently integrating the product data across the frame boundary under a first hypothesis, and to derive second correlation data by coherently integrating the product data across the frame boundary under a second hypothesis.

34. (Newly Added) The signal detector of claim 33, further comprising a circuitry selecting one of the first correlation data and the second correlation data based on which of the first hypotheses and the second hypothesis is more likely.

35. (Newly Added) The signal detector of claim 33, wherein the first hypothesis assumes the phase of the beginning portion of the second frame is unchanged from the phase of the ending portion of the first frame across the frame boundary, and the second hypothesis assumes the phase of the beginning portion of the second frame flips the sign of the phase across the frame boundary with respect to the phase of the ending portion of the first frame.

36. (Newly Added) The signal detector of claim 23, wherein the receiver is an RF receiver.

37. (Newly Added) The signal detector of claim 23, wherein the signal of interest is a carrier signal modulated with a repeating pseudo-noise (PN) code.

38. (Newly Added) The signal detector of claim 23, wherein the noise is pseudo-noise.

39. (Newly Added) The signal detector of claim 23, wherein the segment has complex data having a real component and an imaginary component, and wherein the complex data is processed by the multiplier and the coherent integrator through complex addition and complex multiplication so that the correlation data is complex.

40. (Newly Added) The signal detector of claim 23, wherein the segment has complex data having a magnitude component and a phase component, and wherein the complex data is processed by the multiplier and the coherent integrator through complex addition and complex multiplication so that the correlation data is complex.

41. (Newly Added) The signal detector of claim 23, further comprising a hypothesis generator for generating the at least one hypotheses.

42. (Newly Added) The signal detector of claim 23, further comprising a processor for receiving and analyzing the correlation data.

43. (Newly Added) The signal detector of claim 23, wherein the reference signal is generated by a cellular network.

44. (Newly Added) The signal detector of claim 23, wherein the reference signal is generated by a PCS phone network.

45. (Newly Added) The signal detector of claim 23, wherein the receiver is a global positioning system (GPS) receiver.

46. (Newly Added) The signal detector of claim 23, wherein the at least one signal of interest is generated by a corresponding at least one global positioning system (GPS) satellite.

47. (Newly Added) The signal detector of claim 46, wherein the signal of interest is generated by the GPS satellite is not tracked continuously.

48. (Newly Added) The signal detector of claim 23, wherein the receiver detects a parameter of the signal of interest.

49. (Newly Added) A signal detector, comprising:
means for receiving at least one signal of interest perturbed by noise;
means for detecting at least one reference signal;
means for deriving data from a segment of the at least one signal of interest;
means for multiplying the data with data representative of at least one hypothesis;
means for providing product data representative of the segment and the at least one hypothesis;
means for integrating the product data over a duration of time; and
means for deriving correlation data useful for detecting the signal of interest.

50. (Newly Added) The signal detector of claim 49, wherein the signal of interest is a plurality of successive frames separated by a frame boundary, and wherein each the segment having an ending portion of a first frame of the plurality of frames, a beginning portion of a second frame successive to the first frame, and the frame boundary between the first frame and the second frame.

51. (Newly Added) The signal detector of claim 50, wherein the at least one reference signal determines the location of the frame boundary.

52. (Newly Added) The signal detector of claim 50, wherein the at least one reference signal provides bit synchronization information associated with the signal of interest.

53. (Newly Added) The signal detector of claim 50, wherein the at least one reference signal provides information specifying the location of data epochs associated with the signal of interest.

54. (Newly Added) The signal detector of claim 53, wherein the at least one reference signal provides information determining phase reversals of the data epochs.

55. (Newly Added) The signal detector of claim 50, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame.

56. (Newly Added) The signal detector of claim 55, further comprising a means for detecting the phase reversal, wherein the means for integrating is responsive to the means for detecting the phase reversal, and wherein the means for integrating adjusts the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

57. (Newly Added) The signal detector of claim 55, further comprising a means for detecting the phase reversal, wherein the means for integrating is responsive to the detection of the phase reversal, and wherein the means for integrating flips the sign of the data residing in the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

58. (Newly Added) The signal detector of claim 55, further comprising a means for detecting the frame boundary, wherein the means for integrating is responsive to the detection of the frame boundary, and wherein the means for integrating integrates the ending portion of the first frame and the beginning portion of the second frame.

59. (Newly Added) The signal detector of claim 55, further comprising a means for detecting the frame boundary, wherein the means for integrating is responsive to the detection of a frame boundary, and wherein the means for integrating derives first correlation data by coherently integrating the product data across the frame boundary under a first hypothesis, and derives second correlation data by coherently integrating the product data across the frame boundary under a second hypothesis.

60. (Newly Added) The signal detector of claim 59, further comprising a means for selecting one of the first correlation data and the second correlation data based on which of the first hypotheses and the second hypothesis is more likely.

61. (Newly Added) The signal detector of claim 60, wherein the first hypothesis assumes the phase of the beginning portion of the second frame is unchanged from the phase of the ending portion of the first frame across the frame boundary, and the second hypothesis assumes the phase of the beginning portion of the second frame flips the sign of the phase across the frame boundary with respect to the phase of the ending portion of the first frame.

62. (Newly Added) The signal detector of claim 49, wherein the signal of interest is a carrier signal modulated with a repeating pseudo-noise (PN) code.

63. (Newly Added) The signal detector of claim 49, wherein the noise is pseudo-noise.

64. (Newly Added) The signal detector of claim 49, wherein the segment has complex data having a real component and an imaginary component, wherein the complex data is processed by the means for multiplying, and wherein the means for integrating integrates through complex addition and complex multiplication so that the correlation data is complex.

65. (Newly Added) The signal detector of claim 49, wherein the segment has complex data having a magnitude component and a phase component, wherein the complex data is processed by the means for multiplying, and wherein the means for integrating integrates through complex addition and complex multiplication so that the correlation data is complex.
66. (Newly Added) The signal detector of claim 49, further comprising a means for hypothesis generation for generating the at least one hypotheses.
67. (Newly Added) The signal detector of claim 49, wherein the reference signal is generated by a cellular network.
68. (Newly Added) The signal detector of claim 49, wherein the reference signal is generated by a PCS phone network.
69. (Newly Added) The signal detector of claim 49, wherein the means for receiving receives global positioning system (GPS) signals.
70. (Newly Added) The signal detector of claim 49, wherein the at least one signal of interest is generated by a corresponding at least one global positioning system (GPS) satellite.
71. (Newly Added) The signal detector of claim 70, wherein the signal of interest generated by the GPS satellite is not tracked continuously.
72. (Newly Added) The signal detector of claim 49, wherein the means for receiving receives a parameter of the signal of interest.

73. (Newly Added) A method for detecting a signal of interest comprising the steps of:

receiving at least one signal of interest perturbed by noise;
receiving at least one reference signal;
deriving data from a segment of the at least one signal of interest;
multiplying the data with data representative of at least one hypothesis;
providing product data representative of the segment and the at least one hypothesis;
integrating the product data over a duration of time; and
deriving correlation data useful for detecting the signal of interest.

74. (Newly Added) The method of claim 73, wherein the signal of interest is a plurality of successive frames separated by a frame boundary, and wherein each the segment having an ending portion of a first frame of the plurality of frames, a beginning portion of a second frame successive to the first frame, and the frame boundary between the first frame and the second frame.

75. (Newly Added) The method of claim 74, wherein the at least one reference signal determines the location of the frame boundary.

76. (Newly Added) The method of claim 74, wherein the at least one reference signal provides bit synchronization information associated with the signal of interest.

77. (Newly Added) The method of claim 74, wherein the at least one reference signal provides information specifying the location of data epochs associated with the signal of interest.

78. (Newly Added) The method of claim 77, wherein the at least one reference signal provides information determining phase reversals of the data epochs.

79. (Newly Added) The method of claim 74, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame.

80. (Newly Added) The method of claim 79, further comprising a step of detecting the phase reversal, wherein the step of integrating is responsive to the step of detecting the phase reversal, and wherein the step of integrating adjusts the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

81. (Newly Added) The method of claim 79, further comprising a step of detecting the phase reversal, wherein the step of integrating is responsive to the step of detecting the phase reversal, and wherein the step of integrating flips the sign of the data residing in the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

82. (Newly Added) The method of claim 79, further comprising a step of detecting the frame boundary, wherein the step of integrating is responsive to the step of detecting the frame boundary, and wherein the step of integrating integrates the ending portion of the first frame and the beginning portion of the second frame.

83. (Newly Added) The method of claim 79, further comprising a step of detecting the frame boundary, wherein the step of integrating is responsive to the step of detecting a frame boundary, and wherein the step of integrating derives first correlation data by coherently integrating the product data across the frame boundary under a first hypothesis, and derives second correlation data by coherently integrating the product data across the frame boundary under a second hypothesis.

84. (Newly Added) The method of claim 83, further comprising a step of selecting one of the first correlation data and the second correlation data based on which of the first hypotheses and the second hypothesis is more likely.

85. (Newly Added) The method of claim 84, wherein the first hypothesis assumes the phase of the beginning portion of the second frame is unchanged from the phase of the ending portion of the first frame across the frame boundary, and the second hypothesis assumes the phase of the beginning portion of the second frame flips the sign of the phase across the frame boundary with respect to the phase of the ending portion of the first frame.

86. (Newly Added) The method of claim 73, wherein the signal of interest is a carrier signal modulated with a repeating pseudo-noise (PN) code.

87. (Newly Added) The method of claim 73, wherein the noise is pseudo-noise.

88. (Newly Added) The method of claim 73, wherein the segment has complex data having a real component and an imaginary component, wherein the complex data is processed by the step of multiplying, and wherein the step of integrating integrates through complex addition and complex multiplication so that the correlation data is complex.

89. (Newly Added) The method of claim 73, wherein the segment has complex data having a magnitude component and a phase component, wherein the complex data is processed by the step of multiplying, and wherein the step of integrating integrates through complex addition and complex multiplication so that the correlation data is complex.

90. (Newly Added) The method of claim 73, further comprising a step of hypothesis generation for generating the at least one hypotheses.

91. (Newly Added) The method of claim 73, wherein the reference signal is generated by a cellular network.

92. (Newly Added) The method of claim 73, wherein the reference signal is generated by a PCS phone network.

93. (Newly Added) The method of claim 73, wherein the step of receiving receives global positioning system (GPS) signals.

94. (Newly Added) The method of claim 73, wherein the at least one signal of interest is generated by a corresponding at least one global positioning system (GPS) satellite.

95. (Newly Added) The method of claim 94, wherein the signal of interest generated by the GPS satellite is not tracked continuously.

96. (Newly Added) The method of claim 73, wherein the step of receiving at least one signal of interest receives a parameter of the signal of interest.

97. (Newly Added) A computer readable medium having a program for storing a series of instructions for detecting a signal of interest, the program performing at least the following:

receiving at least one signal of interest perturbed by noise;

receiving at least one reference signal;

deriving data from a segment of the at least one signal of interest;

multiplying the data with data representative of at least one hypothesis;

providing product data representative of the segment and the at least one hypothesis;

integrating the product data over a duration of time; and

deriving correlation data useful for detecting the signal of interest.

98. (Newly Added) The computer readable medium of claim 97, wherein the signal of interest is a plurality of successive frames separated by a frame boundary, and wherein each the segment having an ending portion of a first frame of the plurality of frames, a beginning portion of a second frame successive to the first frame, and the frame boundary between the first frame and the second frame.

99. (Newly Added) The computer readable medium of claim 98, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame, further having a series of instructions for detecting the phase reversal, wherein the series of instructions for integrating is responsive to the series of instructions for detecting the phase reversal, and wherein the series of instructions for integrating adjusts the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

100. (Newly Added) The computer readable medium of claim 98, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame, further having a series of instructions for detecting the phase reversal, wherein the series of instructions for integrating is responsive to the series of instructions for detecting the phase reversal, and wherein the series of instructions for integrating flips the sign of the data residing in the beginning portion of the second frame to allow coherent integration to proceed across the frame boundary.

101. (Newly Added) The computer readable medium of claim 98, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame, further having a series of instructions for detecting the frame boundary, wherein the series of instructions for integrating is responsive the series of instructions for detecting the frame boundary, and wherein the series of instructions for integrating integrates the ending portion of the first frame and the beginning portion of the second frame.

102. (Newly Added) The computer readable medium of claim 98, wherein a phase of the beginning portion of the second frame is in a phase reversal at the frame boundary with respect to the ending portion of the second frame, further having a series of instructions for detecting the frame boundary, wherein the series of instructions for integrating is responsive to the series of instructions for detecting a frame boundary, and wherein the series of instructions for integrating derives first correlation data by coherently integrating the product data across the frame boundary under a first hypothesis, and derives second correlation data by coherently integrating the product data across the frame boundary under a second hypothesis.

103. (Newly Added) The computer readable medium of claim 102, wherein the first hypothesis assumes the phase of the beginning portion of the second frame is unchanged from the phase of the ending portion of the first frame across the frame boundary, and the second hypothesis assumes the phase of the beginning portion of the second frame flips the sign of the phase across the frame boundary with respect to the phase of the ending portion of the first frame, and further having a series of instructions for selecting one of the first correlation data and the second correlation data based on which of the first hypotheses and the second hypothesis is more likely.

104. (Newly Added) The computer readable medium of claim 97, wherein the segment has complex data having a real component and an imaginary component, wherein the complex data is processed by the series of instructions for multiplying, and wherein the series of instructions for integrating integrates through complex addition and complex multiplication so that the correlation data is complex.

105. (Newly Added) The computer readable medium of claim 97, wherein the segment has complex data having a magnitude component and a phase component, wherein the complex data is processed by the series of instructions for multiplying, and wherein the series of instructions for integrating integrates through complex addition and complex multiplication so that the correlation data is complex.